

WIRE & FABRIC GABION BARRIER

What is a Wire & Fabric Gabion Barrier?

A Wire & Fabric Gabion Barrier is used to form a temporary floodwall one to three feet high. It consists of two woven wire fences set about 3 feet apart. The space between the fences is lined with a geotextile and backfilled with soil. (see illustration)

When is a Wire & Fabric Gabion used?

These barriers are used when a relatively low wall is needed to protect sites vulnerable to floods and shallow debris flows from steep, erodible slopes that are partially or completely void of vegetation due to wildfire burns. This method is significantly more durable than a sandbag wall and less expensive than permanent structural measures. The expected life of the wall is 2 to 4 years. Soils at the site must be deep enough to permit driving posts 3 to 4 feet below ground. This wall should not be used in loose soils where water will run parallel to the wall.

How is a Wire & Fabric Gabion Barrier Installed?

The walls can be installed by homeowners or volunteer groups with the assistance of a small backhoe. The wall is constructed using woven wire fencing or geogrid and steel posts, materials that are generally available from most farm supply stores. The geotextile lining is readily available from most erosion control product suppliers. If there is a ready supply of 4" to 6" field stone, the stone can be placed in the wall as backfill and no geotextile is needed. However the stone filled wall will leak water during long duration floods.

Location: Locate the wall to direct storm water runoff and debris flows away from buildings and other structures. Clear a path for the debris, do not try to dam it or stop it. Tie the wall into existing topographic features or completely encircle the area to be protected. Have an engineer verify the wall height needed to provide an adequate level of protection.

Excavation: A backhoe is used to construct a foundation trench about 18 inches deep and 36 inches wide at the proposed wall location. Excavated material should be stockpiled near the wall for use as backfill.

Constructing the "Fence": Refer to the illustration. Standard 6 or 8 foot long steel "T" posts are driven in the bottom of the trench, spaced 3 feet apart along both sides. The posts should be driven to a final height that is 1 to 2 inches below the planned top of the wall. Standard woven wire farm fencing, 48 inches tall, is attached to the posts on the inside of the trench. Chain link fencing, and used materials in good condition are also acceptable fencing material. The top of the fencing establishes the top of the wall, and should be one to two inches above the top of the posts. After both sides of the fence is in place the interior of the wall is lined with a single continuous piece of geotextile. The geotextile is allowed to drape over the sides of the wall

and is not attached to the fence. Brace wire cross ties are then installed 10 to 12 inches above the original ground surface at every post. After the brace wires are in place the wall can be backfilled.

Finishing the Wall. The wall is completed by backfilling it with soil in layers 10 to 12 inches thick. Each backfill layer should be completed over the length of the wall before the next is placed. Care must be taken not to drag the geotextile down into the wall. Backfill is placed within 3 to 4 inches of the top of the wire fencing. After which the geotextile is folded over the top of the backfill and the wire "X" lacing is installed to tie the tops of the posts together to complete the wall.

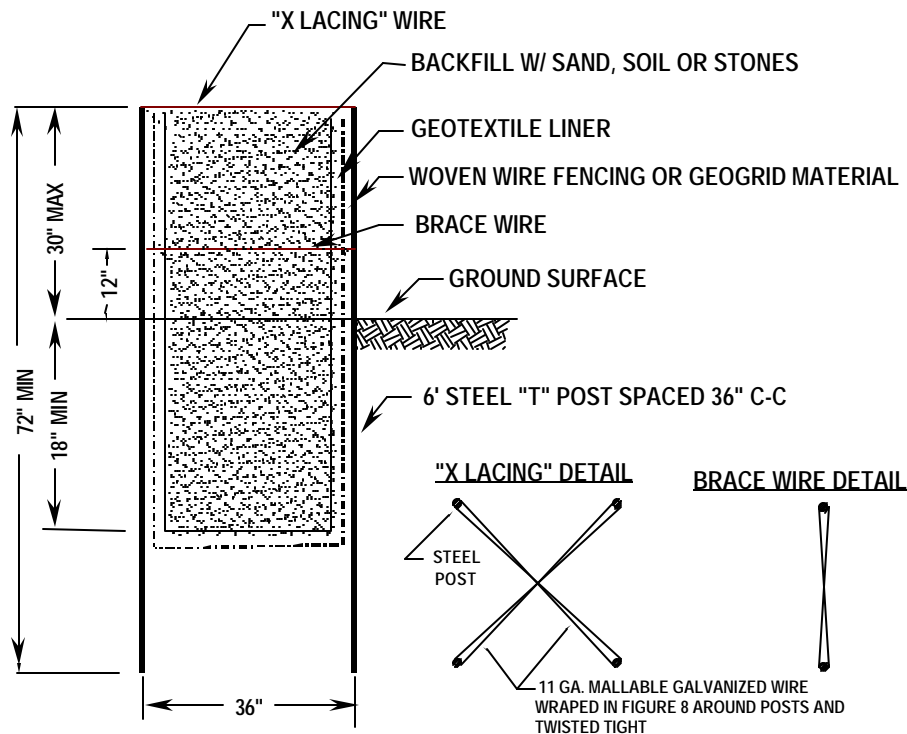
If water is expected to run parallel to the base of the wall consideration should be given to placing a row of sandbags there to protect the fresh excavation from erosion.

What Maintenance do Wire & Fabric Gabion Barriers Require?

The wall should be checked after every runoff/flooding event. Damage should be repaired as soon as possible. Repeated flooding may cause settling of the soil backfill. This can be repaired by removing the wire lacing, adding more fill, and then re-installing the lacing. Small tears or punctures in the geotextile should be repaired where possible by wiring a sandwich of geotextile and hardware cloth over the damaged area.

WIRE & FABRIC GABION DETAIL

(not to scale)



NOTE: After a fire many trees are weakened from burning around the base of the trunk. The **trees can fall over or blow down without warning**. Shallow rooted trees can also fall. Therefore **be extremely alert when around burned trees**.

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